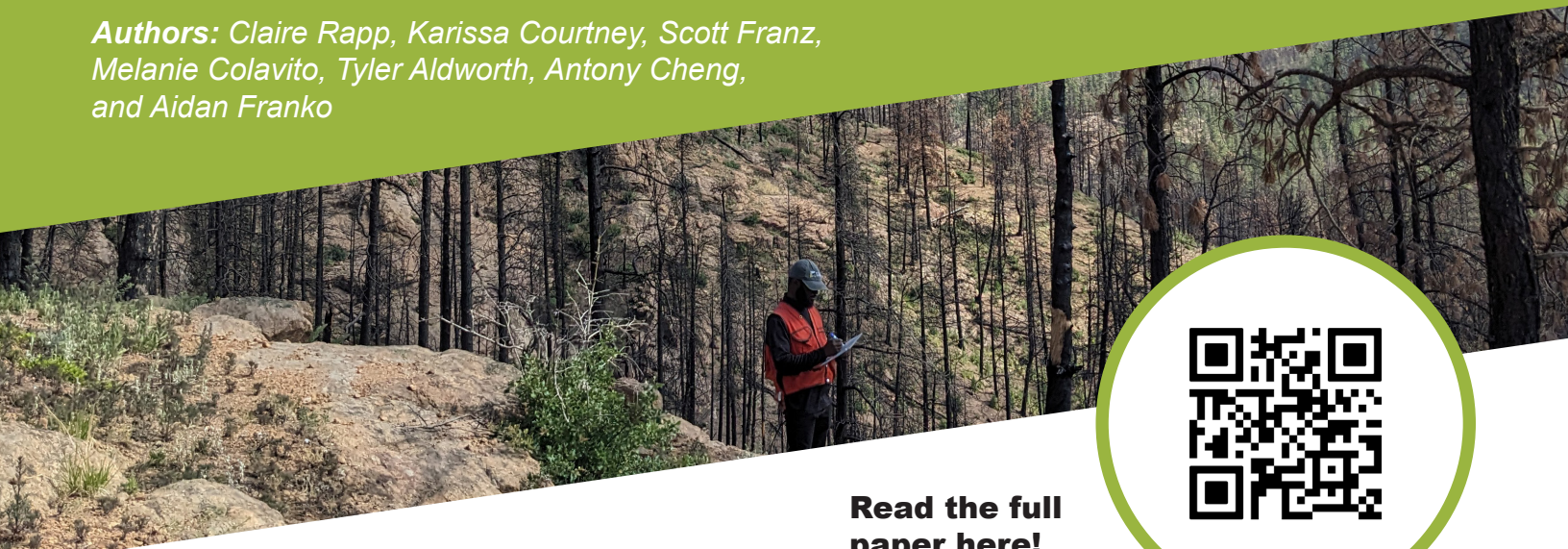


# The Right Decision Support Tool for the Right Job: Ensuring the Juice is Worth the Squeeze for DST Users and Creators

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## Decision Support Tools

Decision support tools (DSTs) are datasets, models, dashboards, and other software applications that can shape and inform practitioner decision-making. In wildland fire management, a wide range of DSTs exist to support pre-fire planning, fire response, and post-fire recovery. These DSTs vary in their intended audience (e.g., federal agency personnel, the public) and their utility and usability. Despite this variation, research suggests DSTs are consulted and used for a variety of tasks, such as:

- Seeking information
- Structuring & supporting group communication
- Crafting messages & communicating with a range of audiences
- Confirming knowledge & building confidence
- Documenting decisions
- Meeting requirements

We reviewed the existing social science and gray literature on wildfire DSTs to identify common barriers, facilitators, and uses. Some key lessons learned and recommendations are highlighted here.

## DSTs for Transparent & Defensible Decisions

Practitioners often use DSTs with the goal of making their decisions more transparent and defensible. To accomplish this goal, DSTs should be used in the following ways:

- **Creating and clarifying objectives, values and goals:** DSTs can help practitioners decide on and describe their values and why they care about them
- **Constructing and considering possible courses of action:** DSTs can help practitioners create a variety of potential actions, and measure how those options help them achieve their objectives
- **Providing a repeatable, consistent structure for linking relevant information to decision-making:** DSTs can help provide a structured approach for action, which helps practitioners make more consistent and transparent decisions
- **Assessing tradeoffs, consequences, and feasibility:** DSTs can help practitioners evaluate potential outcomes and choose a path that best achieves their objectives

There are many different DSTs; some might say too many. A common problem that practitioners, boundary-spanners, and DST creators face is getting the right DST to the right person for the right decision, at the right time.

*“Line officers especially valued the products that allowed them to consider a variety of values at risk and tradeoffs among different strategies in a structured, communicable format.”  
(Schultz et al. 2021)*

## Guiding Questions for DST Designers

- What is the purpose of this DST and how does that align with how it will realistically be used and by who?
  - How can this DST be developed to help users construct goals or possible courses of action?
  - How can we ensure that this DST helps users check, build confidence in, or justify courses of planned actions?
- What kinds of questions (e.g., at what scale) is the DST well-suited to answer?
  - Do these match the questions potential users need answered?
- How can we measure the success and effectiveness of our DST beyond adoption rates and frequency of use?

## Guiding Questions for DST Users

- What is the question I'm trying to answer or the challenge I'm trying to solve?
  - Is there an existing DST whose purpose aligns with my goals?
  - Does this DST fit the scales we need to work within?
- Does this DST provide novel use vs. repetition of sources I already have?



## Factors That Shape DST Use

Factors	Description and Recommendation
Communication	Communication is important for spreading awareness and creating trust in DSTs and their outputs. Users can be more comfortable interacting with a DST if they are aware of and familiar with it before using it. We recommend that teams discuss DSTs well ahead of intended use.
Social	Social characteristics include the beliefs and practices that facilitate adoption and use of DSTs. For example, support for DST use from leadership can be critical for adoption. We recommend that leadership make clear their support for DST use.
Landscape	Local biophysical conditions influence the ability of managers to capitalize on the full potential of DSTs. Characteristics like fuels, weather, proximity to values at risk, roads, slope, and place of ignition affect what work can be done where. We recommend DST users consider the landscape and conditions in which they are using the DST(s).
Resources & Capacity	Resources and capacity influence the ability of managers to use DSTs, and insufficient resources can make it difficult to use or maintain a new DST. We recommend that if practitioners desire to use a new DST, they should dedicate time and resources towards learning and use.
User Experience	The user friendliness of DSTs influences their usability. Easy-to-use workflows, clear structure, and understandable user-interfaces influence DST use and adoption. We recommend that DST creators consider user dynamics when creating a DST and suggest that they seek out user feedback while in the development phase.
Trainings	Formal training is important for sustained use and engagement with DSTs. Examples include help menus on websites, online webinars and trainings, brief refresher courses, formal curriculum, shadowing opportunities, and access to coaches and support staff. We recommend several types of trainings to facilitate DST use and adoption.
Relationships & Trust	Interpersonal relationships influence DST adoption and engagement and build trust. For example, modeler and end-user communication and interpersonal skills are important for increasing buy-in and willingness to engage with DST outputs. We recommend that DST creators co-produce DSTs or their outputs with the end-users.

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